R. L. HOOVER CONSULTING TELECOMMUNICATIONS ENGINEER

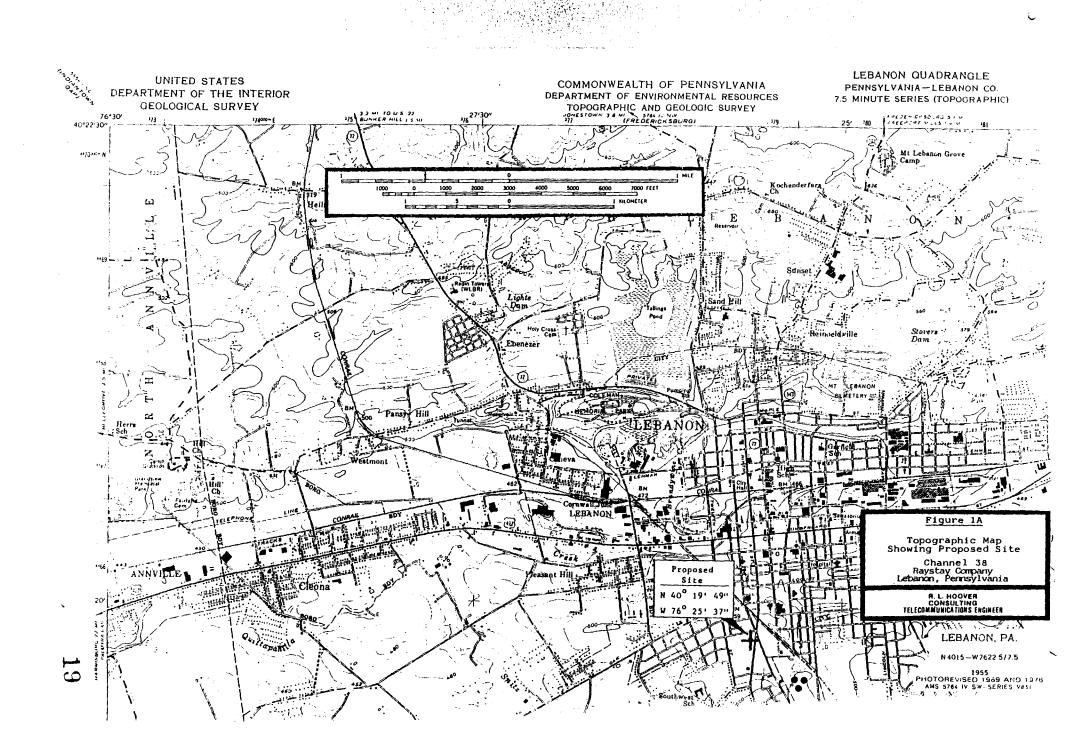
considerable less than this rough approach indicates, but the analysis is rather detailed.

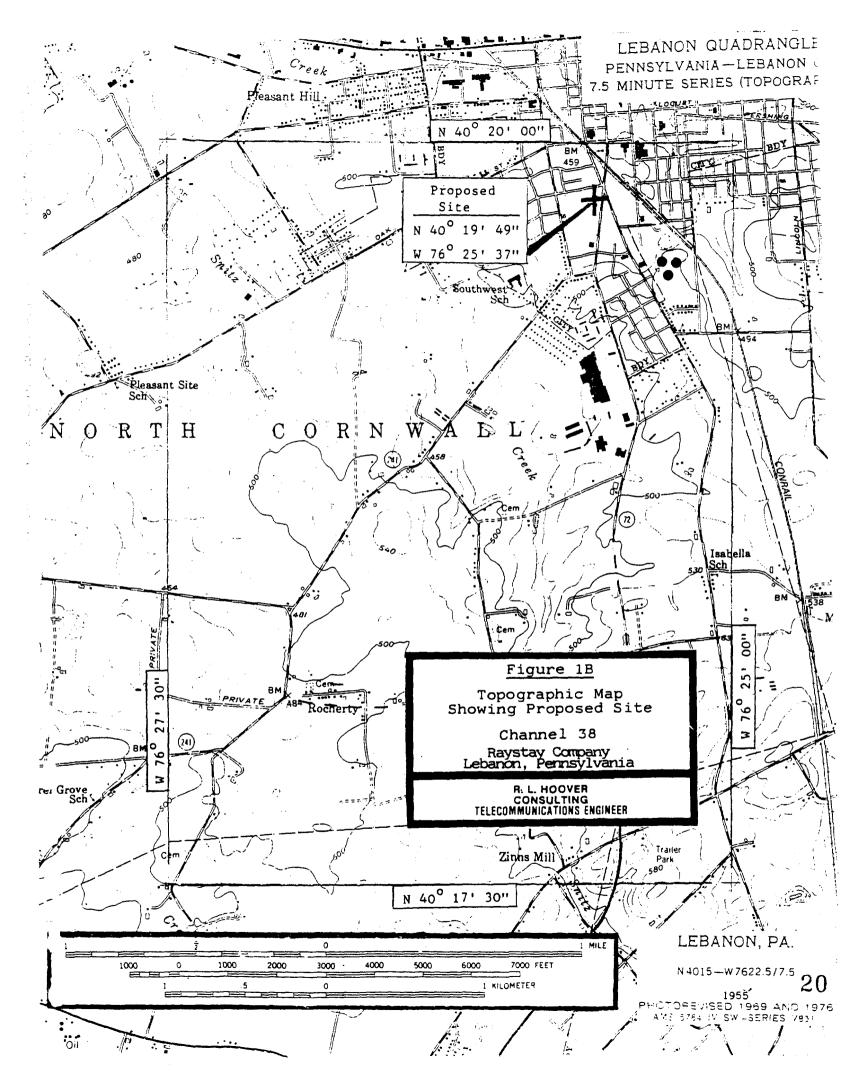
IV. SUMMARY

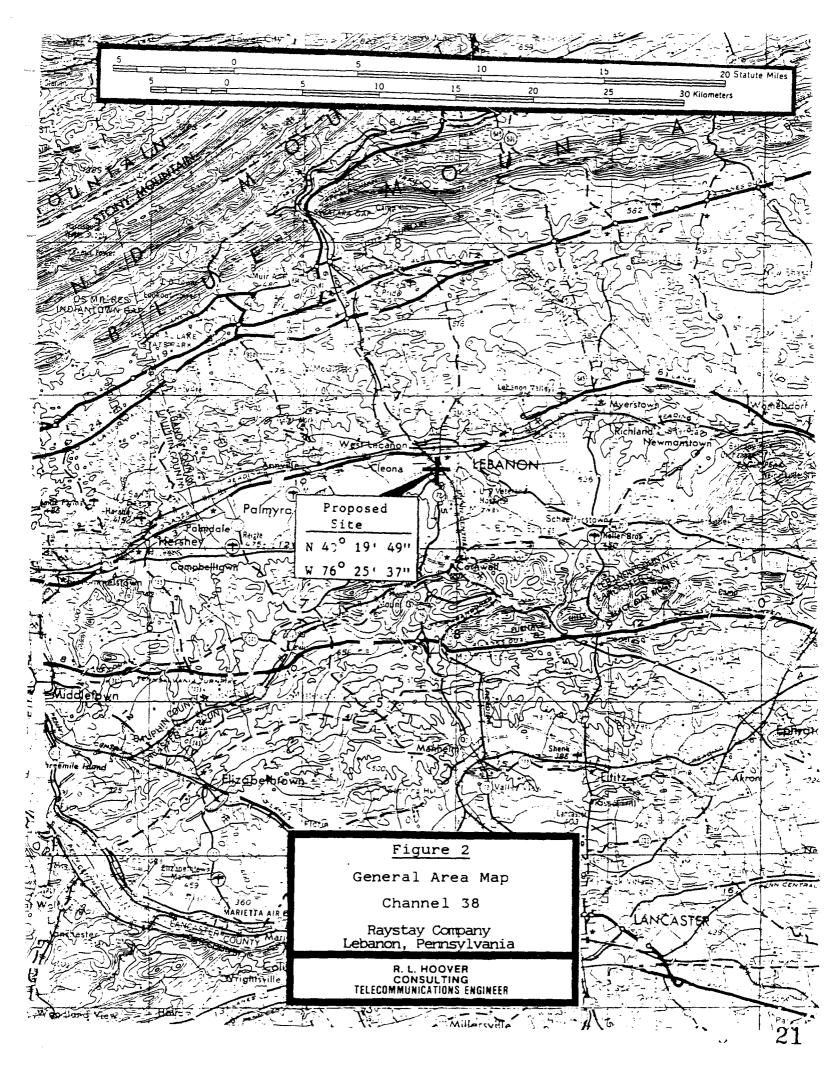
Raystay Company requests a Construction Permit for a new Low Power Television facility on Channel 38 with precise Zero Frequency Offset in Lebanon, Pennsylvania. The application is in full compliance with the Commission's final rules concerning Low Power Television stations.

February 27th, 1989

Robert Lloyd Hoover, PE Maryland No. 11579







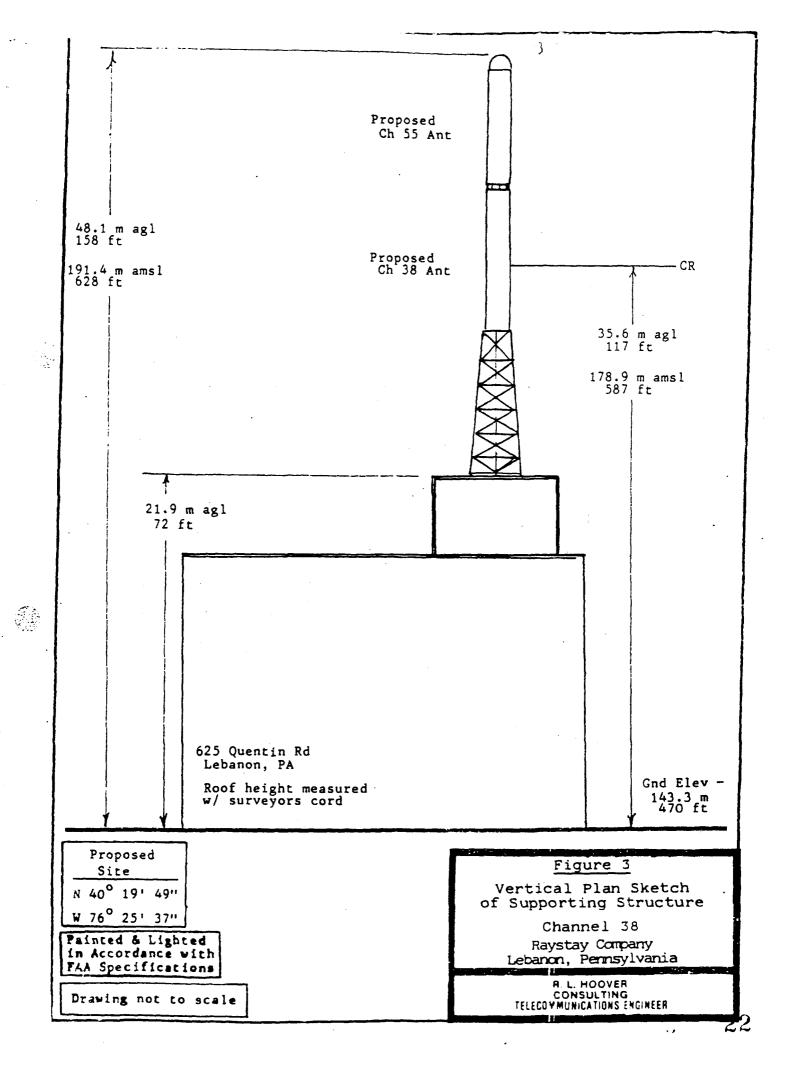


Figure 4

Tabulation of Bogner type B16UA Antenna
Relative Field Strength in the Horizontal Plane
from the Commission's Files

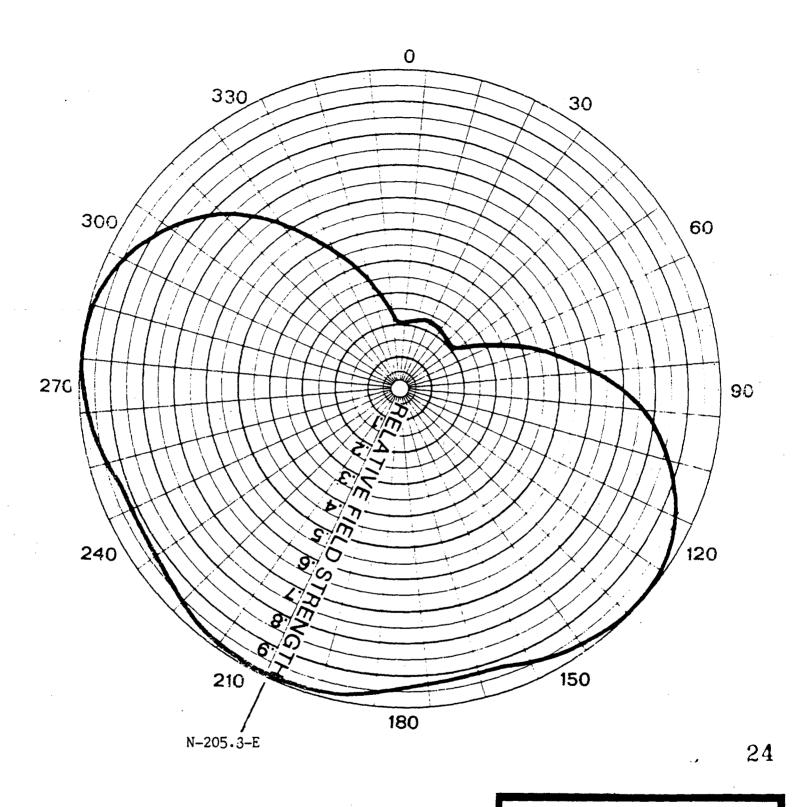
Channel 38

Raystay Company Lebanon, Pennsylvania

AZIMUTH	TABULATED GAIN
0.00 10.00 20.00 30.00	1.000 0.970 Antenna w/ its main lobe 0.950 Oriented at N-205.3-E
40.00	0.920
50.00	0.940
60.00	0.975
70.00	1.000
80.00	0.980
90.00	0.950
100.00	0.875
110.00	0.775
120.00	0.630
130.00	0.470
140.00	0.350
150.00	0.230
160.00	0.220
170.00	0.225
180.00	0.230
190.00	0.225
200.00	0.220
210.00	0.230
220.00	0.350
230.00	0.470
240.00	0.630
250.00	0.775
260.00	0.875
270.00	0.950
280.00	0.980
290.00	1.000
300.00	0.975
310.00	0.940
320.00	0.920
330.00	0.925
340.00	0.950

3





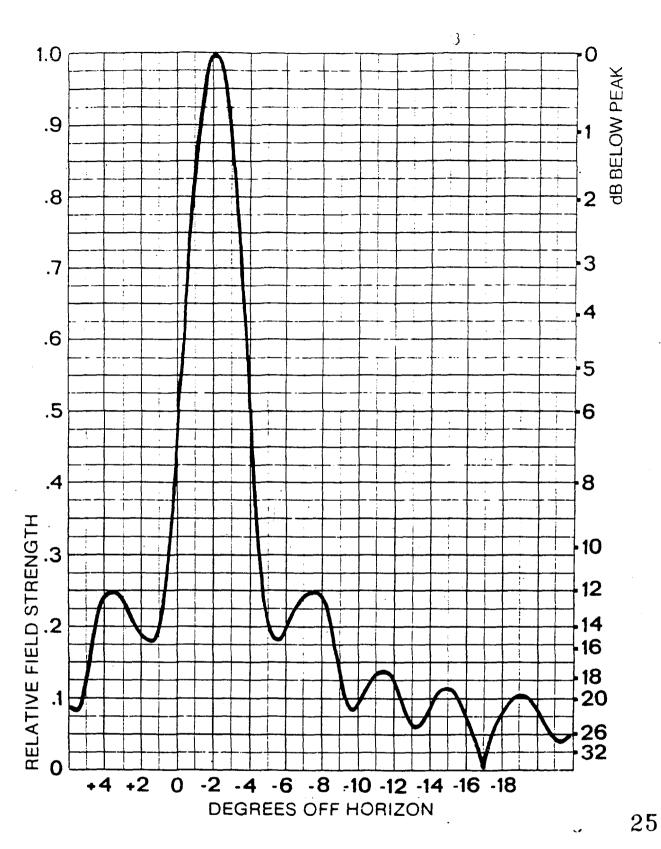
Bogner Broadcast Equipment Corp. Westbury, N.Y. 11590

Figure 5

Horizontal Plot of Relative Field from B16UA Ant Oriented at N-205.3-E

Channel 38 Raystay Company Lebanon, Pennsylvania

R. L. HOOVER CONSULTING TELECOMMUNICATIONS ENGINEER



Bogner Broadcast Equipment Corp.
Westbury, N.Y. 11590

Figure 6

Vertical Shape Factor for B16UA Antenna with -2° Depression Angle Channel 38

> Raystay Company Lebanon, Pennsylvania

R. L. HOOVER CONSULTING TELECOMMUNICATIONS ENGINEER

MAKE CHANGES IN A LOW POWER TV, TV TRANSLATOR OR TV BOOSTER STATION (Carefully read instructions before filling out form - RETURN ONLY FORM TO FCC)

For Commission Fee Use Only	FEE NO: \$705		or <u>Applicant</u> Fee Use C	•
RECEIVED	FEE TYPE:	. a	s a fee submitted with application?	X Yes No
MAR 9 1989	FEE AMT:		f No, indicate reason the Nonfeeable appl	
FOC	ID SEQ:			CF.R. Section 1.1112) educational licensee
	-		Governmental er	ntity
SECTION I - GENERAL NEO	RM ITAON	S 53 (4)	TO Commission Use Onl	*
1. Name of Applicant .		Address P. O.	. Box 38	
Raystay Compan	У	City	isle PA	State Z.p. Code 17013
		Telephone No. (717)	o. (include area code) 245-0040	
2. This application is for: (check one	e box)			
X Low Power Television	TV Tran	slator	TV 80	ooster
	Community to be served:		T State	
55 City	Lebanon		State	PA
(c) Check one of the following b	oo×es:			•
Application for NEW	station		·	•
MAJOR change in lic	ensed facilities, call sign:			
MINOR change in licer	nsed facilities; call sign:	~~~		
MAJOR modification o	f construction permit; call si	gn:		
File No. of Constructio	n Permit:	·		`
MINOR modification o	f construction permit; call si	gn:		
File No. of Constructio	n Permit:			
AMENDMENT 10 2020	ding application; Application f	ila numbas:		

NOTE: It is not necessary to use this form to amend a previously filed application. Should you do so, however, please submit only Sections I and VII and those other portions of the form that contain the amended information.

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Marie

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SECTION VI - EQUAL EMPL	OYMENI OPPORTUN	ITY PROGRAM			
1. For Low Power-TV applicants,	will this station employ	on a full-time basis	s five or more	persons?	Yes X
If Yes, the applicant must inclu Employment Opportunity Repor		illed for in the sepa	rate Broadcast E	lsup	
		•			
SECTION VII - CERTIFICA	TIONS	•			
For new station and major char the public notice requirement			hat it has or wil	I comply with	XX Yes
2. For applicants proposing transla applicant certifies that written programs are to be retransmitt	authority has been obtain	•	•		Yes 1
		N.A.			•
Primary station proposed to be re	broadcast:	State		Channel No.	 -
Call Sign City		State	,	Channel No.	
					· ·
Name		Mailing Address	or Identification	Ouglity Inn	
Barry L. Marc	State	ZIP Code	Telephone N	Quality Inn No. (include area co	ode)
Lebanon	PA	17042	(717)	273-6771	
			•	•	-
The APPLICANT hereby waives States because of the previous u with this application. (See Section	se of the same, whether	er by license or off	herwise, and red		
The APPLICANT acknowledges representations, and that all exhibit				hed exhibits are c	onsidered material
The APPLICANT represents determination on any other applica			ne purpose of	impeding, obstruc	cting, or delaying
In accordance with 47 C.F.R. amendments, or any substantial and				to advise the Co	mmission, through
WILLFUL FALSE STATEM U.	ENTS MADE ON T S. CODE, TITLE 18,		PUNISHABLE	BY FINE AND	IMPRISONMENT.
I certify that the statements in thi made in good faith.	s application are true, o	complete and correc	or to the best o	of my knowledge a	nd belief, and are
	•		•		2
		$\widehat{}$			
Name of Applicant		1 Size Guara	V/A/7		

Raystay Company

Vice President

Title

David A. Gardner March 7, 1989

NOTE: Applicants for new stations only:	
1. Applicant is (check one of the following):	
Individual General Partnership X Corporation	٠
Other	ation
(a) If the applicant is a legal entity other than an individual, partnership, corporation or unincorporated association, describe in an Exhibit the nature of the applicant.	Exhibit No.
(b) For LPTV and TV translator applicants only:	
If the applicant is an individual, submit as an Exhibit the applicant's name, address and telephone number (including area code).	Exhibit No N.A
If the applicant is a partnership, whether general or limited, submitted as an Exhibit the names, addresses, and telephone numbers (including area code) of all general and limited partners (including silent partners), and the nature and percentage of the ownership interest of each partner.	Exhibit No N.A.
If the applicant is a corporation or an unincorporated association, submit as an Exhibit the names, addresses and telephone numbers (including area code) of all officers, directors and other members of the governing board of the corporation or association and the nature and the percentage of their ownership interests in the applicant (including stockholders with interests of 1% or greater).	Exhibit No.
2. For LPTV and TV translator applicants only, submit as an Exhibit a list of all other new applications filed during the same window period as this application in which the applicant or any principal of the applicant has any interest, include the percentage of that interest for each listed application, as well as the other applicant's name (if different) and the channel number and location of the proposed station.	Exhibit No.
NOTE: No more than five (5) applications for new low power TV or TV translator stations may be filed during a single window period by any applicant, or by any individual or entity having an interest of 1% or more in applications filed in the same window period. This limit does not apply to minor or major change applications or to TV booster applications.	
CITIZENSHIP AND OTHER STATUTORY REQUIREMENTS	<u>.</u> :.
3. (a) is the applicant in compliance with the provisions of Section 310 of the Communications. Act of 1934, as amended, relating to interests of aliens and foreign governments?	X Yes \
(b) Will any funds, credit, or other financial assistance for the construction, purchase or operation of the station(s) be provided by aliens, foreign entities, domestic entities controlled by aliens, or their agents?	Yes X
If Yes, provide particulars as an Exhibit.	Exhibit No.
4.(a) Has an adverse finding been made, or an adverse final action taken by any court or administrative body as to the applicant or any party to this application in a civil or criminal proceeding brought under the provisions of any law related to the following: any felony; broadcast-related antitrust or unfair competition; criminal fraud or fraud before another governmental unit; or discrimination?	Yes X N
(b) is there now pending in any court or administrative body any proceeding involving any of the matters referred to in 4(a)?	Yes X N
If the answer to 4(a) or 4(b) is Yes, attach as an Exhibit a full disclosure concerning the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), a statement of the facts upon which the proceeding was based or the nature of the offense alleged or committed, and a description of the current status or disposition of the matter.	Exhibit No.

foregoing pages. MINORITY Yes X 1. The applicant certifies that it is entitled to and seeks to claim minority preference. If yes, complete the following: Percentage interest In the applicant Minority Group Name DIVERSIFICATION PREFERENCE Yes X No 2. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in any media of mass communications. If Yes, DO NOT respond to questions 3 and 4. Yes X No 3. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in more than three mass communications media facilities. X Yes . 4. The applicant certifies that it and/or its owners have no interest, in the aggregate, exceeding 50 percent in a media of mass communications in the same area to be served by the proposed station.

Do not complete the following without reading carefully the definitions and other information set out in the

REMINDER:

EXHIBIT 1

The officers, directors, and ownership of voting stock in Raystay Company is as follows:

•		Percentage of
Name	<u>Officers</u>	Voting Stock
George F. Gardner	President, Treasurer and Director	50.06%
Estate of Marian B. Gardner, George F. Gardner and David A. Gardner Co-Executors	· ·	25.55%
David A. Gardner R.D. 1 Landisburg, PA 17040	Vice-President, Secretary, and Director	8.13%
Michael C. Gardner 580 Boxwood Lane Carlisle, PA 17013		8.13%
David A. Gardner Trustee For Jon C. Gardner c/o Box 38 Carlisle, PA 17013		8.13%

EXHIBIT 2

Raystay Company is filing the following five low power television applications in the window period ending March 10, 1989.

Location of Proposed Station		Channel Number
Red Lion, PA	•	56
Lebanon, PA		55
Lebanon, PA		38
Lancaster, PA		23
Lancaster, PA		31

EXHIBIT 3

Mr. George F. Gardner, President, Director and principal stockholder in Raystay company, is the President, Director, and sole stockholder in Adwave Company (Adwave), applicant for construction permit for a new FM broadcast station at Fort Lauderdale, Florida (MM Docket No. 84-1113, File No. In a Partial Initial Decision Administrative Law Judge Joseph Stirmer (FCC 870-20) released June 4, 1987, a misrepresentation/lack of candor issue was decided adversely to Adwave. Commission had previously directed that all appeals in such cases involving applicants seeking licenses held by RKO General, Inc., be stayed, but has recently set March 16, 1989, as the date for filing of exceptions to such Partial Initial Decisions. Accordingly, Adwave will timely file with the Review Board its appeal of the Partial Initial Decision.

APPLICATION FOR A CONSTRUCTION PERMIT FOR A NEW LOW POWER TELEVISION STATION ON CHANNEL 55 IN LEBANON, PENNSYLVANIA

On Behalf of RAYSTAY COMPANY

EE-1

February 24th, 1989

ENGINEERING STATEMENT IN SUPPORT OF AN APPLICATION FOR A CONSTRUCTION PERMIT FOR A NEW LOW POWER TELEVISION STATION IN LEBANON, PENNSYLVANIA

On behalf of RAYSTAY COMPANY

EE-1

Index:

- 1. Declaration of Engineer
- 2. FCC Form 346, Section II
- 3. Narrative Statement
- 4. Fig. 1A, Topographic Map of Proposed Site
- 5. Fig. 1B, Section of Topographic Map
- 6. Fig. 2, General Area Map
- 7. Fig. 3, Vertical Plan Sketch of Proposed Antenna & Supporting Structure
- 8. Fig. 4, Tabulation of Bogner type B16UA Relative Field Strength
- 9. Fig. 5, Horizontal Plot of Ant Relative Field Strength Oriented at N-153.6-E
- 10. Fig. 6, Vertical Plane Shape Factor for B16UA Antenna with -2 Degrees Beam Tilt

ENGINEERING STATEMENT IN SUPPORT OF AN APPLICATION FOR A CONSTRUCTION PERMIT FOR A NEW LOW POWER TELEVISION STATION IN LEBANON, PENNSYLVANIA On behalf of RAYSTAY COMPANY

EE-1

DECLARATION

Robert Lloyd Hoover declares and states that he is a Registered Professional Engineer in the State of Maryland and seven other states. He further states that he has been in broadcast engineering since 1948 to date.

He states that he has been retained by Raystay Company for the purpose of preparing an application for a Construction Permit for a new Low Power Television Station on Channel 55 in Lebanon, Pennsylvania.

He further states that the calculations, exhibits and measurements reported herein were made by him personally or under his supervision and all facts contained herein are true of his own knowledge, except where stated to be on information or belief, and as to those facts, he believes them to be true. I declare under penalty of perjury that the foregoing is true and correct.

1. Facilities requested:		3				
Output	Transmitter Rated		Prop	osed Communi	ty(ies) to be served	
Channel No.	Power Output	City				State
5 5	1.0 kilowatts	City		Lebanon	<u> </u>	PA
equency Offset (check	one)					
No offset	x Zero offset		Plus	offset	Minus of	fset
ranslator Input Channel N	10. n/a		-			
Proposed transmitting a	artenna location:					
City Lebano	n	State PA	County	.ebanon		
Address or other descri	iption of location:	<u></u>	Geographic	cal coordinates	of transmitting anten	na
625 Quen			to nearest		•	
Lebanon,						
,			No	rth Latitude	West	Longitude
			40°	19	49"76°	25 '
a. Scale of kilometer	ting antenna location acc	urately plotted	•		•	L
	Make	Type N			Output Paw	er P
3. Transmitter:	Acrodyne	TLU/18	ACT		1.0) kilowati
4. Transmission line:	Andrew	LDF7-5	OA.	Length 120 ft	Rared efficiency E f (decimai frac 0.83	
Transmitting antenna	x Directional "off-the-shelf"			onal Composite e Antennas)		Non+Directio
Manufacturer	 -	Madel			Description 1	
Bogner		B16UA			Slot ante	enna
Orientation of main lobe 2 oriented: 153.6 T	Overall antenna structure height above ground a	Elevation	of Site 4	Power gain i maximum rad	G (multiplier) in the ho tiation relative to a hal	rizontal lobe fwave dipole
bes at: 153.6°T, 223.6° & 83.6°T	48.1 meters	143.	3 meters	Ghorz = 32	$x (0.5)^2 = 8$ $-2 deg beam ti$	lt
ective radiated power (8		Height of ant		on center abov		3.9 meters
P=P X E X G)6.	64 kilowatts	Height of ant	enna radiatio	on center		4 ft
		above abo	ove mean se	a level	18 ⁻ 614	7.2 meters 4 ft
ive basic type using gener in-shase array, two stacked	al descriptive terms such as 5 element Yagis, etc.	half-wave dipol	e, "bow-tie"	with screen, co.	rner reflector, 10 element	: Yagi, 4 elem
or directional antennas in t degree horizontal azimuth, r	the horizontal plane show the numbered clockwise, with true	direction of the	e main radiat zimuth.	ian lobels) in de	grees with respect to tr	ue north in a
now overall height above gr	ound in meters to topmost po	ortian of structur	e, including h	nighest top moun	ted antenna and beacon is	f any.
MW the grainer of the	•					

- 4 Show the ground elevation above mean sea level in meters at the base of the transmitting antenna supporting structure.
- 5 Give the actual power gain toward the radio horizon.

6 This is equal to the sum of the site elevation and the height of the antenna radiation center above ground,

o. Attach as an Exhibit a vertical plan sketch for the proposel structure, giving overall height of structure in meters above		Exhibit No. EE+1
7. Will the proposed antenna supporting structure be shared	with an AM radio station?	Yes X
If yes, list the call sign of that station.		
8. Attach as an Exhibit a polar diagram of the radiation pattern transmitting antenna showing clearly the correct relationship minor lobes of radiation and a tabulation of the pattern minima. Applicants proposing use of multiple transmitting pattern. If a non-directional transmitting antenna will be emploifular radiation pattern, check here and omit polar radiation pattern, check here and model number are on the Commission's antennas, check here and omit polar diagram and tabulations.	p between the major lobe or lobes and the last every ten degrees and all maxima and antennas shall submit a composite radiation aployed, i.e., an antenna with an approximately ofar diagram and tabulation. If the antennal list of common "off-the-shelf" directional	Exhibit No. EE-1
9. Has FAA been notified of proposed construction?		X Yes N
	Feb 24th, 89, Eastern Regional Office	
10. Environmental Statement (See 47 C.F.A., Section 1,1301 e	er seq.)	
M/ould a Commission grant of this application come with a significant environmental impact, including exposure nonlonging radiation levels?		Yes X N
If you answer Yes, submit as an Exhibit an Environmental If no, explain briefly why not. See Exhibit		Exhibit No.
11. Unattended operation:		Process process
Is unattended operation proposed?		X Yes No
If Yes, and this application is for authority to construct facilities of an authorized station which proposes unatt will comply with the requirements of 47 CFR. Section	tended operation for the first time, applicant	X Yes No
12. Is type approved broadcast equipment being specified? If No, indicate date equipment was submitted to FCC Lab	poratory for approval.	X Yes. No
		-
I certify that I represent the applicant, in the capacity indicatechnical information and that it is true to the best of my king.	ited below and that I have examined the fore nowledge and belief.	egoing statement of
February 24th, 1989	Signature	·
Oate	Rober & politions	$\overline{}$
	Typed or Printed Name Robert Lloyd Hoover, PE	·
	Telephone No. (include area code) (301) 983-0054	•
Technical Director X Registered	Professional Engineer	Consulting Engineer
	_	, - , - , - , -
Chief Operator Other (spe	(City)	

ENGINEERING STATEMENT IN SUPPORT OF AN APPLICATION FOR A CONSTRUCTION PERMIT FOR A NEW LOW POWER TELEVISION STATION IN LEBANON, PENNSYLVANIA On behalf of RAYSTAY COMPANY

EE-1

I. GENERAL

This engineering statement has been prepared on behalf of Raystay Company. The purpose of this statement is to request a Construction Permit for a new Low Power Television Station on Channel 55 in Lebanon, Pennsylvania. This is one of five applications being filed by Raystay Company in Pennsylvania.

Tha applicant proposes to operate on Channel 55 with a directional antenna system having a maximum Effective Radiated Power of 6.64 kW in the horizontal plane. An electrical beam tilt of -2 degrees is proposed for the antenna. The applicant proposes to operate with a precise Zero Offset Carrier Frequency.

This application is not a major environmental hazard, as defined by Section 1.1305 of the Rules. The proposed operation is in compliance with the safety standards specified in Section 1.1307(b), that is, the exposure of the general public and workers to the ANSI C95.1 1982 exposure quidelines.

Answers to questions in the Form 346 are provided in the attached statement.

II. PROPOSED OPERATION

A. Proposed location

The proposed site would be at 625 Quentin Road, Lebanon, Pennsylvania. The geographical co-ordinates of the proposed site are:

N 40° 19' 49" W 76° 25' 37"

A topographic map showing the proposed site is provided in Figure 1A and the applicable section of that topographic map is provided in Figure 1B. A general area map of the area is shown in Figure 2.

Inasmuch as the overall height of the proposed antenna and its supporting structure would be 48.1 meters (158

feet) agl, the FAA Eastern Regional Office was notifed.

B. Proposed Antenna System & Supporting Structure

The applicant proposes to mount a Bogner type B16UA antenna on top of another proposed Bogner type B16UA for Channel 38, where both antennas would be supported by a 30-ft (9.1 m) pedestal. The antenna and its supporting structure would be constructed on the roof of a building. The building roof is 72 feet (21.9 meters) agl, which was recently measured with a surveyors cord. The Center of Radiation would be 43.9 meters (144 feet) agl or 187.2 meters (614 feet) amsl. A vertical plan sketch of the proposed antenna and its supporting structure is shown in Figure 3.

The applicant proposes to use a Bogner type B16UA antenna oriented at N-153.6-E where its main lobes are in this direction as well as N-223.6-E and N-83.6-E. The antenna is specified to have a -2 degree beam tilt.

For a -2 degree beam tilt the B16UA antenna Vertical Plane (Shape or Form) Pattern has a relative field strength value of 0.5 in the horizon compared to a maximum value of unity or one at the depression angle of -2 degrees. The Antenna Power Gain in the horizontal plane is 0.25 of that value at the depression angle. That is, multiplying the square of the Vertical Plane (Shape) Pattern value in the horizon times the maximum Power Gain of the Antenna in its depression angle results in a Power Gain in the horizontal plane of 8, viz,

$$G_{at horz} = (0.5)^2 \times 32 = 8$$
.

The vendor warrants that the Vertical Plane (Shape) Pattern holds in all azimuthal directions; therefore, the ERP in the horizontal plane in all azimuthal directions is equal to or less than 6.64 kW.

C. Operational Specifications

It is proposed to install an Acrodyne type TLU/1KACT LPTV transmitter that is rated to deliver 1000 peak watts into a dummy load. The transmitter is type accepted for Part 74 of the Rules. The transmitter will be specified to maintain a precise frequency offset of $\frac{1}{2}$ kHz at a specified designation of Zero Carrier Offset from the standard carrier frequency on Channel 55. The Bogner LPTV type B16UA antenna with a -2 degrees beam tilt provides a power gain of 8 above that of a dipole (9 dBd) in the horizontal plane. The antenna would be oriented at N-153.6-E, where the main lobes would also point in this direction and N-223.6-E and N-83.6-E. A tabulation

R. L. HOOVER CONSULTING TELECOMMUNICATIONS ENGINEER

of the relative field strength in the horizontal plane is provided in Figure 4, and a horizontal plot of these data is shown in Figure 5. The proposed transmission line would be Andrew type LDF7-50A, which has an attenuation of approximately 0.674 dB per 100 feet at the visual carrier frequency of 717.25 MHz. The efficiency for the proposed 120-ft length of cable is approximately 83 percent. For 1-kW Transmitter Power Output with a line efficiency of 83 percent and antenna power gain of 8, the Effective Rated Power would be 6.64 kW.

D. Proposed Coverage

Inasmuch as the proposed site is within the Lebanon city limits, the 74-dBu contour will provide coverage over all of Lebanon and its immediate vicinity.

III. ENVIRONMENTAL CONSIDERATION

No significant environmental impact would result due to the Commission granting this applicant.

A. Environmental Impact Statement

The applicant proposes to mount its Channel 55 antenna on top of a Channel 38 antenna, where the two antennas would be supported by a 30-ft (9.15 m) tower on the roof of a building. The applicant is also applying for an LPTV Station on Channel 38 in Lebanon. Such construction would be not be a Major Action.

This application would not come within Section 1.1307 of the Rules. The applicant does not propose to use high intensity lighting. No environmental impact is involved since the proposed site is not in an area that would constitute an environmental impact since it is not located in any known wilderness and/or wildlife areas, historic and/or scenic areas and will not involve extensive changes to the existing terrain features. No known migratory bird or animal path would be blocked by mounting the proposed Channel 55 and Channel 38 LPTV antennas on a 30 ft (9.15-m) tower on a building roof in downtown Lebanon.

B. National Environmental Policy Act of 1969

This application will not result in radiofrequency radiation in excess of the applicable safety standards specified in Section 1.1307(b), that is, the exposure of workers and the general public would be based upon the recent ANSI C95.1 1982 exposure guidelines.